

REMARKS

This is in response to the non-final Official Action currently outstanding with regard to the above-identified application.

Claims 1-8, 39, 45, and 51 were pending at the time of the issuance of the currently outstanding Official Action, Claims 9-38, 40-44, 46-50 and 52-56 having been withdrawn from further consideration in view of Applicants' response to the Previous Requirement for Restriction in this application. The foregoing Amendment amends Claims 1-8, 39, 45 and 51. No Claims are either added or canceled, and no further claims are withdrawn. Accordingly, upon the entry of the foregoing Amendment, Claims 1-8, 39, 45 and 51 as hereinabove amended will constitute the claim under active consideration in this application.

Specifically, in the currently outstanding non-final Official Action, the Examiner has:

1. Acknowledged Applicants' claim for foreign priority under 35 USC 119 (a)-(d) and (f), and confirmed the receipt of the required copies of the priority documents by the United States Patent and Trademark Office.
2. Accepted the drawings filed with this application on 17 December 2003.
3. Indicated that the formal drawings filed with this application on 17 December 2003 have been accepted.
4. Acknowledged the Information Disclosure Statement filed concurrently with this Application by providing Applicants with a copy of the Form PTO-1449 that accompanied that Statement duly signed, dated and initialed by the Examiner in confirmation of his consideration of the publications listed therein.

5. Rejected Claims 1-9 (presumably meaning 8), 39, 45 and 51 under 35 USC 112, second paragraph, on the basis that the claims are indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as their invention in that the term “area of search” is of essentially unlimited scope and in that it is unclear whether all references thereto refer to the same thing.
6. Rejected Claims 1-4 under 35 USC 102(e) as being anticipated by Byrne (US Patent 6,687,571), hereinafter “Byrne/571”.
7. Rejected Claims 5-7 under 35 USC 103(a) as being unpatentable over the Byrne/571 in view of McLurkin et al (US Patent Application Publication 2006/0079997).
8. Rejected Claim 8, 39 and 45 under 35 USC 103(a) as being unpatentable over Byrne/571 in view of Smith (US Patent 6,206,324).
9. 9. Rejected Claim 51 under 35 USC 103(a) as being unpatentable over Byrne/571 in view of McLurkin et al further in view of Smith.

No further comment regarding items 1-4 above is deemed to be required in these Remarks.

With respect to item 5 above, Applicants respectfully note that the “area of search” referred to in the presently pending claims is intended to be the area of search defined by the control apparatus for each of the sensing robots, the control apparatus being either the base station or the base station and the pheromone robot according to the particular embodiment of the invention that is under discussion. However, Applicants understand the Examiner’s point of rejection in that the “area of search” referred to in the presently pending claims is essentially unlimited in scope and in that it is unclear that each reference to the “area of search” is not clearly directed to the same thing.

In view of the foregoing, the claims of this application now have been amended so as to indicate that each of the sensing robots is located at any given time in an area defined by the control apparatus relative to itself, i.e. the control apparatus controls the definition of the areas in which of each of the plurality of sensing robots are respectively located relative to the control apparatus at any given time. Hence, as will appear more fully below, the control apparatus controls the location of the various ones of the plurality of sensing robots relative to itself according to the level of the sensing function of the particular one of the sensing robots relative to the others of the sensing robots and any movement of the control apparatus either relative to the object that has been located by one of the plurality of sensing robots or with respect to another object of search. Looked at another way, the definition of the area in which the various ones of the plurality of sensing robots are located relative to the control apparatus is maintained, and once one of the plurality of sensing robots detects the object, the others of the sensing robots move out of the areas in which they were located at the time of the detection. This movement is simply another way of saying that the control apparatus, or a portion thereof, moves once the object is detected by one of the sensing robots such that the defined relationship between the various sensing robots and the control apparatus, or a portion thereof, is maintained such that the exact location of the object can be pinpointed more accurately or another object may be searched for.

In other words, in one case, the control apparatus as described in the present specification may move toward an object detected by a sensing robot having a low resolution located in one area relative to the control apparatus at the time of object detection. As this occurs, the location of a sensor robot having a higher resolution capability than that of the detecting robot moves from the area in which it was located relative to the control apparatus at the time of detection to another area relative to the control apparatus at its new location closer to the point of location of the object.

In another case, according to the specification, the first detection of the object is deemed sufficient for its location, and the control apparatus and its associated sensing robots move on to the search for a further object, usually by the control apparatus moving into another area of interest and the associated sensing robots moving from their positions at the time of the original object detection to new areas defined by the control apparatus at its new location. Accordingly, the “area of search” terminology utilized previously in the claims of this application is believed to be better and more clearly phrased in terms of areas defined by the control apparatus relative to itself. This is because the control apparatus (or at least a portion thereof) is deemed to move relative to the object to be detected during the search procedure thereby causing the movement of the sensor robots associated with the control apparatus from their original areas defined by the control apparatus to new areas defined thereby as the control apparatus (or a portion thereof) is moved relative to the target object(s).

In view of the foregoing, Applicants respectfully submit that the above rephrasing of the terminology of the claims pending in this application has removed the bases for the Examiner’s outstanding rejections under 35 USC 112, second paragraph. Accordingly, reconsideration and withdrawal of the currently outstanding rejections under 35 USC 112, second paragraph, in response to this submission is respectfully requested.

Turning now to items 6-8 above, Applicants respectfully submit that the Byrne/571 reference does not disclose robots having different sensor capability levels. Quite the contrary, it appears to Applicants that an idea at the very heart of the Byrne/571 reference is that all of the robots are to be located in a commonly defined area and are to be the same as each other. Thus, while Byrne/571 does list numerous components that *might be included* in the robots therein disclosed (see Col. 5, line 41-52), Applicant nevertheless respectfully submits that the system that Byrne describes is based on all of the robots being the same (see Col. 7 *et seq.*)

Thus, for example, it is Applicants' understanding of the Byrne reference that each of the robots is to be the same such that, for example, when each robot detects the sought after object the strength of the sensing result and the direction from which the sensed signal reached each robot is determined. Then, the respective robots of the Byrne group share their respective sensed inputs such that a collective search strategy can be determined. For example, a robot heading north receives a steadily decreasing sensor input while robots flanking the northward moving robot traveling south receive a steadily increasing sensor signal strength. Collectively, this suggests that the north traveling robot should reverse its direction while the south moving robots should alter their movements so as to travel south south east and south south west, for example so as to home in on the object based upon their collective sensor results that are shared with one another.

Applicant respectfully submits that this is quite different from the present invention wherein the detection of an object by a sensor robot having one level of sensor sensitivity causes movement of the control apparatus and associated other sensor robots out of their positions at the time of the original detection of the object such that sensor robots having greater sensitivities eventually close in on the object location, or the controller and its associated robots move on to another search..

Further, Applicants have experienced difficulty in finding in the Byrne reference the limitation of the present claims that requires "wherein said control apparatus responds to detection of an object by said sensing robot to provide control such that a sensing robot other than said sensing robot that has detected said object moves outside an area of search". This is particularly the case once the potentially confusing phraseology of this part of the present claims has been clarified by the foregoing Amendment. Nevertheless, the Examiner apparently has read the Byrne/571 at Col. 10, lines 28-38, as disclosing this feature of the present invention based upon the fact that the Byrne reference establishes so-called "stop criteria" whereby some robots in his group may stop searching while the others continue their search.

Applicants respectfully submit, however, that the largest problem with the Examiner's approach in the latter regard is that as far as Applicant has been able to tell the "search area" of the Byrne/571 reference is not broken down into defined areas for each robot that are determined by the control apparatus *per se*, whether that break down be based upon robot capability or simply upon control parameters.

Thus, as far as Applicants have been able to determine, in the Byrne/571 reference there is an overall controller in the form of a camera or the like that can give the individual robots information as to where they are in the “search area”. Hence, at any give time by the utilization of multiple such input each of the robots can orient itself within the “search area” and thereafter maintain a knowledge of its position via dead reckoning as it moves about the “search area” based upon the combination criteria developed in concert with the other searching robots. In the present invention, on the other hand, however, it is clear that the movements of the robots are all closely choreographed by the controller that determines how robots of each sensor capability are to move and when. Also, in the present invention, once the object is found, an emphasis is to move the non-detecting robots on to another defined area within which another controlled search is to take place, even though a pinpointing of the originally detected object clearly is also possible. Certainly, nothing in the Byrne disclosure teaches, discloses or suggests that various robots that somehow pool their various inputs so as to form a coherent search strategy apart from the controller (other than as an orientation device for each of the robots within the “search area”) would cause one of ordinary skill in the art to make the present invention.

Accordingly, Applicants respectfully submit that the comparison of the Byrne/571 reference with the present specification is somewhat like the proverbial comparison of “apples and oranges”, i.e., there is some relation in that both are fruits, grow on trees and are generally similar in shape, but beyond those features, they are so different that it is not possible to realistically say that one is the same as (anticipates) the other or even that one would somehow teach, disclose or suggest the other to one skilled in the art (35 USC 103(a)) even with the addition of some minor extraneous pieces. Therefore, Applicants respectfully submit that the Byrne et al reference does not anticipate the present invention (at least as clarified by the foregoing Amendment), and further that the Byrne reference is so different from the present invention as hereinabove claimed that the Examiner’s recitation of the disclosures of certain subsidiary references as showing features of the dependent claims is insufficient to defeat the patentability of the claims of this application as hereinabove amended.

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In view of the foregoing Amendment and Remarks, therefore, Applicants respectfully request reconsideration and allowance of this application in response to this submission.

Applicant believes that additional fees beyond those submitted herewith are not required in connection with the consideration of this response to the currently outstanding Official Action. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. **04-1105**, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

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SIGNATURE OF PRACTITIONER

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